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Teacher–Child Relationships and Pedagogical Practices: Considering the Teacher's Perspective

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Abstract. This study explored the link between teachers' reports of their relationships with individual kindergartners and their self-reported pedagogical practices toward these children. Two samples of kindergarten teachers were examined. They were questioned about, respectively, 117 and 167 children selected as socially inhibited, hyperactive, or average relative to their classmates. Multilevel regression analyses revealed significant associations between relationship characteristics and teachers' practices independent of children's behaviors. Teachers reported more socioemotional support and more behavior regulation for children with whom they reportedly had unfavorable (dependent, conflicted, or distant) relationships. Teachers' appraisals of children's behaviors partly mediated the links between their ratings of the teacher–child relationship and their practice reports. Results qualify the idea that supportive teacher behaviors are a defining characteristic of positive teacher–child relationships, and further underline the need to include teachers' relationship perceptions in practical assessments of children referred for emotional or behavioral problems.

The past decade has witnessed considerable research attention for children's relationships with their teachers. As a result, there is increasing evidence that early teacher–child relationships function as dyadic systems that have unique influences on children's development (Pianta, Hamre, & Stuhlman, 2003). Negative (conflicted or dependent) relationships appear to operate as risk factors, whereas

positive or warm relationships are considered to have a protective function. These effects of relationship quality pertain to a wide range of school adjustment outcomes, including school liking, work habits, academic performance, social competence, adaptive behavior, and peer-rated liking (e.g., Birch & Ladd, 1997; Hamre & Pianta, 2001; Howes, 2000; Hughes, Cavell, & Willson, 2001; Pianta & Stuhlman,

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2004). Despite all the evidence for the importance of the teacher-child relationship, the processes by which these effects occur are not fully understood. More specifically, little is known about how teacher-child relationships are manifested in teachers' behaviors. Such knowledge is not only theoretically important, but seems to be crucial in attempts to help teachers improve relationships with particular children. The present study addressed this issue from the teacher's perspective. It explored the links between teachers' self-reports of their relationships with individual kindergartners and their self-reported pedagogical practices toward these children.

Relationships between teachers and children have been studied from various research perspectives (Koomen, Verschueren, & Thijs, 2006). Prominent among these is the extended attachment perspective. Early teacher-child relationships can be conceptualized as "secondary attachment bonds" (Ainsworth, 1991). Unlike primary attachment relationships, these bonds are not exclusive, long term, or predominantly affective. However, they can fulfill the important attachment functions of providing children with a secure base to explore their surroundings (Attili, 1985) and of supporting them in times of stress (Pianta, 1992; van IJzendoorn, Sagi, & Lambermon, 1992).

Many studies have relied on teachers' perceptions to assess the relationships with their pupils. Often these perceptions are assessed along the dimensions of closeness, conflict, and dependency. These dimensions are mostly examined as separate relationship characteristics, but in some studies they are used to evaluate overall relationship quality (Howes, Matheson, & Hamilton, 1994; Pianta, Nimetz, & Bennett, 1997). Closeness refers to the amount of warmth and open communication in the relationship and can be considered a positive indicator of relationship quality. Conflict and dependency reflect, respectively, mutual anger and negativity, and children's overdependence on the teacher. Both are viewed as negative indicators of relationship quality (Hamre & Pianta, 2001; Pianta, 2001). In the

present study, conflict, dependency, and the absence of closeness (henceforth labeled "distance") were examined as separate unfavorable relationship characteristics.

Despite the fact that many researchers have assessed teachers' perceptions of teacher-child relationships, little theoretical attention has been paid to how these relationships are related to teachers' behaviors toward their pupils. Consistent with the extended attachment perspective, it has been assumed that favorable teacher-child relationships are characterized by warm and supportive teacher behaviors. For instance, it has been suggested that teachers' ability to provide assistance and warmth is a key aspect of teacher-child relationship quality (Pianta et al., 2003); that close relationships motivate teachers to invest in children's school success whereas dependent and conflicted relationships hinder efforts to promote a positive school environment for children (Hamre & Pianta, 2001); and that close relationships enable children to elicit support from their teachers (Birch & Ladd, 1997). Moreover, some researchers have operationalized children's perceptions of the teacher-child relationship in terms of perceived support from teachers (Mantzicopoulos & Neuharth Pritchett, 2003; Murray & Greenberg, 2000).

There is some indirect empirical support for a correspondence between the quality of teachers' relationships with individual students and the quality of their behaviors toward them. The authors know of three studies that examined teachers' observed behaviors as predictors of individual teacher-child relationships. Their findings indicated that relationship quality is positively associated with emotional support (Hamre & Pianta, 2005), positive interaction behaviors (Henricsson & Rydell, 2004), and appropriate instructional practices, including positive emotional climate (Mantzicopoulos, 2005). In addition, Stuhlman and Pianta (2002) examined observed teacher behaviors as outcomes of teachers' narratives about teacher-child relationships. These researchers used a semistructured interview to elicit teachers' representations of re-

relationships with their students, and related these to observations of teachers' behaviors. Teachers who expressed more negative affect during the interview displayed more instances of negative affect toward the children. Likewise, teachers who often referred to issues of compliance during the interview (i.e., whether the child followed classroom rules) showed less positive affect (Stuhlman & Pianta, 2002). Together these studies suggest that there is a positive link between the quality of teachers' relationships with individual students and the quality of their behaviors toward them. However, each of these studies relied on observations of teachers' practices. The question remains whether this association is consistent with teachers' perceptions of the interactions with their students.

To understand the effect of relationships on teacher behaviors or practices from the teacher's perspective, the notion of interpersonal scripts may be taken into account. Interpersonal scripts reflect the typical patterns of relating between self and others and guide how actions and events in relationships proceed (Baldwin, 1992; Berscheid, 1994; Chen, Boucher, & Tapias, 2006). It can be assumed that teachers possess *professional* scripts of interactions with their students, which influence how they interpret and handle unfavorable relationships with them. Unfavorable relationship characteristics may indicate specific problematic aspects of children's interpersonal behaviors to teachers, and their evaluations of such difficulties may affect their behaviors toward their pupils (e.g., Kokkinos, Panayiotou, & Davazoglou, 2005; Lovejoy, 1996). When children share distant, dependent, or conflicted relationships with their teachers, their behaviors may be perceived as annoying. These children may hinder teachers in doing their jobs, leading to frequent attempts to control children's behaviors (cf. Hamre & Pianta, 2001). However, this is not to say that unfavorable relationships are associated with less support. Distance, dependency, or conflict may also signify deficits that impede children in their social functioning. As professional educators trained to attend to

children's needs (Chazan, Laing, & Harper, 1987), teachers can be expected to respond to these problems by being extra rather than less supportive to children.

In the present study, teachers' self-reports of their pedagogical practices toward individual kindergartners were assessed. Teachers' pedagogical practices denote their active attempts to influence children's social behaviors. Self-report studies have indicated that these attempts can be characterized in terms of support and control. Whereas support refers to teachers' helping behaviors and attempts to promote the child's well-being, control denotes teachers' efforts of directing and monitoring the child's behavior (Cunningham & Sugawara, 1989; Thijs, Koomen, & van der Leij, 2006). Like other self-reports, teachers' descriptions of their own practices may be sensitive to biases and reflect what is socially desirable. However, there are reasons to assume that these biases are limited. Little is known about the accuracy of teachers' reports concerning their practices toward *individual* children, but there are indications that teachers' reports of their *general* classroom practices reflect their actual behaviors or students' experiences of these. Moderate to large correlations have been reported between kindergarten teachers' beliefs about appropriate education and observations of their classroom practices (Stipek & Byler, 1997). Likewise, teachers and students in secondary school appear to agree considerably on their perceptions of teachers' interpersonal behaviors (Wubbels, Brekelmans, & Hooyman, 1992). Moreover, apart from the issue of bias, asking teachers about their own behaviors can be considered relevant for the assessment of the more deliberate and professional aspects of their actions (Koomen et al., 2006; Thijs et al., 2006). Therefore, these self-reports can be considered useful for a first evaluation of the relational script perspective.

The goal of the present study was to investigate the unique links between teachers' reports of their relationships with individual kindergarten children and their self-reported pedagogical practices toward them. Not only

was this investigation deemed theoretically important, its outcomes were assumed to have practical importance as well. If systematic relations between teachers' relationship and practice reports were to be revealed, this could imply that teachers take account of their relationship perceptions in their professional considerations. To help teachers devise appropriate practices, practitioners should include these relationship perceptions in assessments of referred children. Data were used from two samples of teachers who were examined in relation to children selected as socially inhibited, hyperactive, and average (neither inhibited nor hyperactive) relative to their classmates. Social inhibition and hyperactivity denote fairly different types of (problem) behaviors. Whereas socially inhibited children show quiet, wary, and reticent behaviors and tend to go unnoticed in social situations (Asendorpf, 1993; Rubin & Burgess, 2001), hyperactive children show motor restlessness, are frequently off task, and pose serious challenges to classroom education (Hinshaw, 1987; Wenar & Kerig, 2000). Thijs et al. (2006) have previously described how teachers in both samples reported different pedagogical practices for the different types of children. These samples were also adequate for the present research purposes as they allowed the examination of the effects of relationship qualities on teachers' self-reported practices, independent of large differences in children's general behaviors. In addition, the mediating roles of two types of behavior appraisals were considered: disturbance, the extent to which children's behaviors were perceived as disturbing to the teacher, and hindrance, the extent to which these behaviors were seen as impeding to the child. Three hypotheses were tested. First, it was expected that unfavorable relationship characteristics (distance, dependency, and conflict) would be associated with relatively high levels of control from teachers. Next, consistent with the relational script perspective, it was hypothesized that teachers would report more support for children with whom they shared unfavorable relationships. Finally, it was expected that

relationship effects on control would be mediated by perceptions of disturbance, and that effects on support would be mediated by hindrance.

Method

Participants and Procedure

Eighty-one teachers and 284 children from regular Dutch kindergarten classes were involved. Teachers varied with respect to age ($M = 41.51$ years, $SD = 10.24$; available for $n = 77$) and teaching experience ($M = 15.12$ years; $SD = 10.98$, available for $n = 67$). Both variables were strongly related ($r = .83$, $p < .01$). The mean age of the children was 5.84 years ($SD = 0.58$). In the Dutch school system, kindergarten starts at the age of 4 and lasts 2 years. As 26 children were under 5 years old, the large majority of the children had at least 1 year of experience in kindergarten.

Teachers and children belonged to two independent samples (A and B) from cities and villages in different parts of the Netherlands. Sample A consisted of 39 teachers (37 women and 2 men) who were examined in relation to three children each: one child selected as socially inhibited (24 girls and 15 boys), one as hyperactive (12 girls and 27 boys), and one as average (27 girls and 12 boys) relative to his or her classmates. Sample B consisted of 42 teachers (40 women and 2 men) who were examined in relation to 76 children selected as inhibited (35 girls and 41 boys), 43 selected as hyperactive (15 girls and 28 boys), and 48 as average (27 girls and 21 boys) relative to their classmates. Whereas the three types of children differed with respect to gender in Sample A (but not in Sample B), $\chi^2(2, 117) = 13.00$, $p < .01$, there were no significant age differences between them. In addition, teachers in both samples were similar with regard to age and experience.

To select the children, teachers completed the modified version of the Behavior Questionnaire for 2- to 6-Year-Olds (BQTSYO-M) for all children over 5 years old and if possible for

all children in their classes. This instrument is described in the next section. Teachers were not informed about the selection guidelines, which were as follows: Children were selected as inhibited if they scored highest on Social Inhibition but not above the class mean on Hyperactivity and Externalizing Behavior; as hyperactive if they scored highest on Hyperactivity but not above the class mean of Social Inhibition and Internalizing Behavior; and as average if they scored close to and slightly below the class mean of all scales. Approximately 1 week after their completion of the BQTSYO-M, teachers filled out additional questionnaires for the selected children.

Measures

Teachers completed screening measures for 1,512 children—that is to say, the total group of pupils from which the children were selected. By contrast, appraisal, relationship, and practice scales were filled out for the selected children only ($n = 284$). These measures were included in a single booklet for each child in the following order: (a) Hindrance (the first appraisal scale), (b) the relationship scales, (c) Disruptiveness (the second appraisal scale), and (d) the practice scales. For all scales, alpha coefficients pertaining to the appropriate number of participants will be reported.

Screening measures. Children were selected with the BQTSYO-M (Thijs, Koomen, de Jong, van der Leij, & van Leeuwen, 2004). The BQTSYO-M is a short screening instrument containing subscales for social inhibition and hyperactivity, and broadband scales for internalizing and externalizing behaviors. Its items are scored on a 4-point Likert scale ranging from 1 (*absolutely not characteristic*) to 4 (*very characteristic*).

Social Inhibition consists of 5 items, including "Tries to avoid attention," "Rather quiet, does not say anything spontaneously," and "Easily withdraws." Children in Sample A were selected with a preliminary version of this subscale, which contained 3 extra items: "Little active," "Somewhat on his/her own,"

and "Does not initiate any contact with other children." To select children in Sample B, and in all other analyses, the 5-item subscale was used. Hyperactivity was measured with 4 items, including "Has poor concentration" and "Restless." Cronbach's alpha was .85 for Social Inhibition (.87 for its extended version in Sample A), and .83 for Hyperactivity. The broadband scale for internalizing behavior consists of the items of social inhibition and 9 other items, including "Cries easily" and "Easily worries." Externalizing Behavior contains the 4 items pertaining to hyperactivity, and 9 additional items, including "Hits or kicks other children" and "Disobedient." The alpha was .90 for Internalizing and .92 for Externalizing Behavior.

Behavior appraisals. Teachers' appraisals of each child's behavior were assessed with two 5-point scales, with items ranging from 1 (*no, certainly not!*) to 5 (*yes, certainly!*). These scales were developed for this study and based on Rutter's main criteria for impairment, which include suffering, social restriction, interference with development, and negative effects on others (Rutter, 1975). The first scale, Hindrance, pertained to the first three criteria (i.e., the effects on the child). It consisted of 4 items: "The child suffers because of his/her social behavior," "The child is happy with the way he/she is behaving" (reverse coded), "The behavior hinders the child in his/her social functioning," and "The child is restrained in his/her normal social-emotional development." Cronbach's alpha was .91 in both samples. Disruptiveness measured the extent to which the social behavior was disturbing to the teacher. Teachers completed this second scale after filling out the relationship measures (see next section). They had to rate the extent to which they thought the child's behavior was "disturbing," "inconvenient," and "irritating." The 3 items yielded alphas of .93 in both samples. To examine whether both appraisal scales corresponded to related but separate dimensions, a two-factor model was tested in Mplus Version 3.13 (Muthén & Muthén, 2004). Fit indices for this

model were as follows: $\chi^2(13, n = 284) = 30.403, p > .001$; CFI = .989; RMSEA = .069; SRMR = .027. Except for the RMSEA, index values met criteria for good fit (i.e., CFI > .95 and SRMR < .08; Hu & Bentler, 1999). However, as RMSEA values between .05 and .08 indicate fair fit (Browne & Cudeck, 1993), the two-factor model was considered appropriate.

Teacher-child relationship. Teachers' representations of their relationships with each of the children were measured with a preliminary version of a Dutch adaptation of the Student-Teacher Relationship Scale (STRS; Pianta & Steinberg, 1992). The STRS can be used to assess closeness, dependency, and conflict in teachers' relationships with individual children. These three aspects refer to, respectively, the amount of warmth and open communication in the relationship, children's overdependence on the teacher, and the extent to which the relationship is characterized by anger and negativity. The STRS is a widely used research instrument for which sufficient to good psychometric properties have been reported. For instance, the three scales Closeness, Dependency, and Conflict correspond to a three-factor structure, they have acceptable test-retest reliabilities, and they show significant relations with measures of behavior problems, competence, and school outcomes (Hamre & Pianta, 2001; Pianta, 2001).

The instrument used in the present study was a preliminary version of the Dutch adaptation of the STRS (Koomen, Verschueren, & Pianta, 2007). Like the STRS, it contains subscales for closeness, dependency, and conflict. Each scale was measured with 6 items, including STRS items with clear and unambiguous factor loadings in previous unreported analyses. All teachers completed the scales for closeness and dependency, but only teachers in Sample B filled out the Conflict scale. Teachers in Sample A did not complete the Conflict measure as they were also involved in interviews, and it was desirable to minimize the burden of data collection for them. Therefore, they were presented with only one neg-

ative indicator of relationship quality (dependency instead of both dependency and conflict).

As the focus was on unfavorable relationship characteristics, Closeness was recoded into a scale for Distance (its exact opposite). This scale included items such as "This child appears to feel safe with me" and "I share a warm relationship with this child." Cronbach's alpha was .82 in both samples. Sample items of Dependency are "This child constantly needs reassurance" and "This child asks me for help in situations in which this is not really necessary." The alpha was .87 in Sample A and .79 in Sample B. For Conflict, the alpha was .84 (in Sample B). Items included "This pupil easily becomes angry with me" and "Dealing with this pupil drains my energy." All items were scored on a 5-point Likert scale ranging from 1 (*no, certainly not!*) to 5 (*yes, certainly!*). To examine the factor structure of teachers' relationship representations, analyses were conducted for each data set. Given the size of each sample, principal components analyses instead of confirmatory factor analyses were used (see Bentler, 1989). In Sample A, two components were yielded that corresponded to Distance and Dependency. They explained 59.9% of the variance and had main loadings over .61 and cross-loadings below .28. In Sample B, three components were obtained accounting for 56.1% of the variance. These components corresponded to the three relationship scales. One Dependency item ("This child reacts strongly to separation from me") had a similar loading on both the Dependency and the Conflict components (.41). However, all other items had main loadings over .58 and cross-loadings below .32. Thus, overall the principal components analyses showed that the different relationship dimensions could be reasonably well distinguished in both samples.

Pedagogical practices. After filling out the relationship questionnaire, teachers completed the Teacher Pedagogical Practice Questionnaire (Thijs et al., 2006) to rate their own pedagogical practices toward each of the

selected children. The Teacher Pedagogical Practice Questionnaire contains scales for behavior regulation and socioemotional support. Both subscales consist of 5 items, which are rated on a 5-point Likert scale ranging from 1 (*absolutely not characteristic*) to 5 (*very characteristic*). Behavior Regulation denotes the extent to which the teacher controls and regulates the child's behavior through limit setting, behavior reinforcement, and teaching social skills. Two sample items are "I speak individually to this child about his/her social behavior" and "I set clear limits to this child's behavior." Socioemotional Support refers to teachers' actions aimed at promoting the socioemotional well-being of the child, providing safety and opportunities for social interaction. Sample items are "More than other children I try to make this child feel safe" and "I intervene if this child feels ill at ease." Both scales had sufficient internal consistency. For Behavior Regulation, Cronbach's alpha was .83 in Sample A and .85 in Sample B. For Socioemotional Support, the alpha was .76 in Sample A and .77 in Sample B.

In a previous study involving three samples (including the present), preliminary support for the psychometric properties of the Teacher Pedagogical Practice Questionnaire was obtained. Both the Behavior Regulation and Socioemotional Support subscales corresponded to two exploratively derived factors in different data sets including one child per teacher. In addition, rudimentary support for the subscales' convergent and divergent validity was provided as both measures showed considerable and unique relations to teachers' descriptions of their own practices in a free-interview situation (Thijs et al., 2006). To examine the factor structure of the Teacher Pedagogical Practice Questionnaire in the present data sets, confirmatory factor analyses were conducted in Mplus Version 3.13 (Muthén & Muthén, 1998–2004). In this model, cross-loadings were allowed for two Behavior Regulation items. For these items, (standardized) cross-loadings were substantially lower than hypothesized loadings (.35 and .33 as compared, respectively, to .67 and .63). The

analysis yielded the following fit indices: $\chi^2(32, n = 284) = 92.146, p < .001$; CFI = 0.941; RMSEA = 0.081; SRMR = 0.057. Given the criteria by Hu and Bentler (1999) and Brown and Cudeck (1993), the two-factor structure could be considered an acceptable description of teachers' self-reported practices toward all selected children.

Analyses

The analyses pertained to teachers in relation to individual children (i.e., teacher-child dyads). Because each teacher was examined with respect to more than one child, data for single dyads were clearly not independent. Analyzing dependent data with conventional statistical tests could lead to an underestimation of standard errors and hence to spuriously significant results (Snijders & Bosker, 1999). To prevent this, multilevel analyses were conducted. Multilevel analysis corrects for dependencies between observations nested within the same units, including measurements within persons (cf. Jenkins, Rasbash, & O'Connor, 2003; Snijders & Bosker, 1999). Moreover, it can handle variable numbers of observations per unit (Snijders & Bosker, 1999). Multilevel regression models were tested with MLwiN version 2.0 (Rasbash, Browne, Healy, Cameron, & Charlton, 2004). Two levels were specified: the dyadic level (Level 1) and the teacher level (Level 2).

In the analyses, the effects of behavior were partialled out in two manners. First, the differences between the three types of children were represented by two contrasts. Contrast 1 denoted the difference between inhibited and hyperactive versus average children, and Contrast 2 denoted the difference between inhibited and hyperactive children. In addition, within-group differences in Social Inhibition and Hyperactivity were included as covariates.

Results

Preliminary Analyses

Before the unique effects of relationship variables on teachers' self-reported practices

Table 1
Screening, Relationship, and Appraisal Measures for Inhibited, Hyperactive, and Average Children in Samples A and B

Measure	Sample A			Sample B		
	Inhibited <i>M (SD)</i>	Hyperactive <i>M (SD)</i>	Average <i>M (SD)</i>	Inhibited <i>M (SD)</i>	Hyperactive <i>M (SD)</i>	Average <i>M (SD)</i>
Screening measures						
Social Inhibition	2.41 (0.62) _a	1.16 (0.24) _b	1.19 (0.20) _b	2.35 (0.71) _a	1.09 (0.22) _b	1.28 (0.31) _c
Hyperactivity	1.21 (0.30) _a	3.03 (0.60) _b	1.22 (0.23) _a	1.23 (0.28) _a	2.91 (0.73) _b	1.41 (0.42) _c
Relationship measures						
Distance	2.09 (0.55) _a	1.94 (0.51) _a	1.69 (0.48) _b	2.11 (0.60) _a	1.94 (0.42) _{ab}	1.74 (0.57) _b
Dependency	2.88 (0.93) _a	2.93 (0.86) _a	2.26 (0.60) _b	2.61 (0.75) _a	2.88 (0.66) _b	2.38 (0.64) _c
Conflict	—	—	—	1.73 (0.50) _a	2.59 (0.61) _b	1.82 (0.55) _a
Appraisal measures						
Hindrance	3.10 (0.73) _a	2.99 (0.95) _a	1.67 (0.55) _b	2.81 (0.73) _a	2.95 (1.05) _a	2.04 (0.85) _b
Disruptiveness	1.86 (0.81) _a	3.61 (0.82) _b	1.71 (0.70) _a	1.75 (0.69) _a	3.43 (0.92) _b	1.86 (0.83) _a

Note. Means with the same subscripts in the same sample can be considered equal ($p > .05$). The screening measures range from 1 to 4, with higher scores indicating more problem behaviors. The relationship and appraisal measures range from 1 to 5. Higher scores on Distance, Dependency, and Conflict indicate less favorable relationship characteristics. Higher scores on the appraisal measures indicate more negative appraisals.

were investigated, group differences on the independent variables, and correlations between relationship characteristics, behavior appraisals and teachers' practice reports were examined. Because there were no significant gender differences once children's behaviors were controlled for, gender was not included in the analyses.

Group differences. Table 1 displays mean scores for the independent variables separately for the three types of children in each sample. To test the group differences, multi-level models were run in which each variable was regressed on both contrasts. Examinations of the screening variables revealed that the selection procedure had been successful. The inhibited children scored higher on Social Inhibition than the other children, and the hyperactive children had higher scores on Hyperactivity. In addition to this, there were significant differences on the relationship and appraisal variables. It appeared that teachers perceived more distance and dependency in

their relationships with inhibited and hyperactive children as compared to average children in both samples. Next, teachers in Sample B reported more conflict in their relationships with the hyperactive versus the average children, and more conflict and dependency for the hyperactive versus the inhibited children. Finally, teachers reported more hindrance for the inhibited and hyperactive versus the average children, and higher rates of disturbance for the hyperactive versus the inhibited and average children.

Intercorrelations. In Table 2, the correlations between relationship characteristics, behavior appraisals, and teachers' practice reports are given for all children in each sample. In both samples, correlation patterns were largely similar. First, Distance, Dependency, and Conflict (in Sample B) were positively related to Hindrance and Disruptiveness. This indicated that teachers negatively appraised the behavior of those children with whom they shared unfavorable relationships. Next, Dis-

Table 2
Intercorrelations, Means, and Standard Deviations for Relationship,
Appraisal, and Practices Measures

Measure	1	2	3	4	5	6	7	Sample A <i>M (SD)</i>	Sample B <i>M (SD)</i>
Relationship measures									
1. Distance		-.06	.32**	.45**	.21*	.20*	.19*	1.91 (.54)	1.96 (.57)
2. Dependency	.04		.38**	.32**	.37**	.32**	.35**	2.68 (.86)	2.61 (.72)
3. Conflict	—	—		.43**	.77**	.05	.65**	—	1.97 (.65)
Appraisal measures									
4. Hindrance	.45**	.52**			.45**	.47**	.42**	2.59 (1.00)	2.62 (.93)
5. Disruptiveness	.29**	.33**	—	.48**		.08	.79**	2.39 (1.16)	2.22 (1.07)
Practice measures									
6. Socioemotional Support	.26**	.42**	—	.62**	.00		.29**	2.96 (.82)	2.91 (.81)
7. Behavior Regulation	.16	.38**	—	.46**	.75**	.17		2.98 (1.00)	2.74 (.93)

Note. Correlation coefficients below the diagonal are from Sample A, and coefficients above the diagonal are from Sample B.

* $p < .05$.

** $p < .01$.

tance was positively related to Socioemotional Support in both samples and to Behavior Regulation in Sample B. Dependency showed positive relations to both pedagogical practices in both samples. Apparently, teachers reported more support and behavior regulation for those children with whom they shared more distant and more dependent relationships. Conflict was positively related to Behavior Regulation but unrelated to Support. Finally, Hindrance was positively related to Support, and both Hindrance and Disruptiveness were positively associated with Behavior Regulation.

Multilevel Regressions

Next, regression models were tested to examine the unique effects of the relationship variables on Socioemotional Support and Behavior Regulation. These analyses were conducted separately for each sample. Analyses proceeded in two steps. First, each practice variable was regressed on the two contrasts representing the different types of children and on the within-group scores for social inhibition and hyperactivity. Next, the available relationship characteristics were added to the

equation. Model improvement was evaluated by comparing deviance statistics. Differences between these statistics follow a χ^2 distribution, and degrees of freedom are given by the differences in numbers of parameters (Snijders & Bosker, 1999). For ease of interpretation, the continuous measures were standardized. Results are given in Table 3.

Socioemotional support. Model 1 displays the results of the first step for Socioemotional Support. In both samples, there were significant effects of both contrasts, revealing different rates of support for the three types of children. As previously reported (Thijs et al., 2006), teachers indicated higher rates for the inhibited and hyperactive versus the average children, and for the inhibited versus the hyperactive children. In addition, there were positive effects of within-group social inhibition in both samples, and within-group hyperactivity in Sample B. Adding the relationship variables in Model 2 led to significant model improvement both in Sample A, $\chi^2(2) = 14.329$, $p < .01$, and in Sample B, $\chi^2(3) = 25.008$, $p < .01$. It appeared that Dependency had a

Table 3
Multilevel Regression Models Predicting Teachers' Self-Reported Pedagogical Practices

Predictors	Socioemotional Support				Behavior Regulation			
	Model 1		Model 2		Model 1		Model 2	
	Sample A	Sample B	Sample A	Sample B	Sample A	Sample B	Sample A	Sample B
Contrast 1	.34**	.14**	.25**	.05	.32**	.22**	.24**	.12**
Contrast 2	.44**	.25**	.44**	.34**	-.68**	-.72**	-.69**	-.54**
Social Inhibition	.23**	.20**	.19**	.18**	-.07	-.11	-.10	-.08
Hyperactivity	.03	.20**	-.06	.09	.18**	.34**	.11	.23**
Distance			.08	.18*			.12	.21**
Dependency			.29**	.27**			.22**	.11*
Conflict				.09				.28**
Variance								
Level 1 (dyad)	.529	.513	.500	.419	.403	.349	.392	.221
Level 2 (teacher)	.062	.325	.018	.343	.038	.150	.002	.181
Deviance	269.204	415.534	254.875	389.696	235.342	340.170	223.275	283.196

Note. Contrast 1 denotes the difference between inhibited and hyperactive versus average children, and Contrast 2 denotes the difference between inhibited and hyperactive children.

* $p < .05$.

** $p < .01$.

positive effect on support, which was comparable in both samples. Distance had a unique positive effect but only in Sample B. Conflict was unrelated to support.

Behavior regulation. Model 1 for each sample revealed that there were significant differences in Behavior Regulation reported for the three groups of children. In both samples, teachers reported less control for the average and inhibited than for the hyperactive children. Next, hyperactivity within each group had positive effects in both samples, and social inhibition within each group had a positive effect in Sample B. Adding the relationship characteristics to the model led to better fit in Sample A, $\chi^2(2) = 12.067$, $p < .01$, and Sample B, $\chi^2(3) = 52.439$, $p < .01$. In Sample A, only Dependency had a unique positive effect. In Sample B there were significant effects of all relationship variables. Teachers reported more behavior regulation for those children with whom they shared more distant, more dependent, and more conflicted relationships.

Mediation Effects

Next, the potential mediating roles of teachers' appraisals were examined. For mediation to occur, two conditions should be present in addition to significant relations between predictors and dependent variables (see Baron & Kenny, 1986). First, the mediators (in this case appraisals) should be related to the independent variables (relationship quality), and second, they should be related to the dependent variables (pedagogical practices). For Hindrance, both conditions were present, as this variable was significantly related to the relationship and practice variables in each sample (see Table 2). For Disruptiveness, these conditions were partly present. In both samples, this appraisal was related to each relationship characteristic and to Behavior Regulation. However, it was unrelated to Support and could not therefore mediate the effects of relationship quality on this practice variable.

The critical test for mediation is that the influence of the predictor on the dependent variable is substantially reduced when the mediator is added as another predictor (Baron & Kenny, 1986). Table 4 displays the results of this test. When Hindrance was added to the model for Socioemotional Support, the effect of Dependency was no longer significant in Sample A and reduced in Sample B. In addition, the effect of Distance was no longer significant in Sample B. When both appraisal variables were added to the prediction of Behavior Regulation in Sample A, the effect of Dependency was diminished. In Sample B, the effects of Conflict and Dependency were no longer significant, and the effect of Distance was reduced. Note that this could not be attributed to the inclusion of Hindrance, as its effects on Behavior Regulation were nonsignificant in both samples.

To examine whether the aforementioned reductions were substantial, Sobel tests were conducted for the indirect effects of the three relationship characteristics on teachers' practices (MacKinnon, Warsi, & Dwyer, 1995). These tests revealed that Hindrance carried a significant portion ($p < .05$) of the relationship effects on Socioemotional Support: for Dependency, $z = 3.48$ in Sample A, and 2.30 in Sample B, and for Distance, $z = 3.52$ in Sample B. Likewise, the relationship characteristics had significant effects on Behavior Regulation ($p < .05$) through Disturbance: in Sample A, $z = 2.18$ for Dependency, and in Sample B, $z = 2.37$ for Distance, 2.15 for Dependency, and 4.23 for Conflict. These results indicate that teachers' appraisals of children's behaviors mediated, in part, the link between their relationship perceptions and their self-reported pedagogical practices.

Discussion

The present study examined the links between teachers' perceptions of their relationships with individual kindergartners and their self-reported pedagogical practices toward these children. Results were generally in agreement with the hypotheses. Both teachers'

Table 4
Multilevel Regression Models with Appraisals Included

	Socioemotional Support		Behavior Regulation	
	Sample A	Sample B	Sample A	Sample B
Predictors				
Contrast 1	.09	-.04	.15**	.06*
Contrast 2	.43**	.32**	-.41**	-.34**
Social Inhibition	.17**	.10	-.07	-.08
Hyperactivity	-.11	-.02	.03	.13**
Distance	-.08	.04	.01	.11*
Dependency	.13	.19**	.14*	.03
Conflict	—	.00	—	.08
Hindrance	.50**	.47**	.05	.10
Disturbance	—	—	.37**	.43**
Variance				
Level 1 (Dyad)	.377	.323	.351	.169
Level 2 (Teacher)	.058	.353	.000	.155
Deviance	232.867	356.216	209.556	242.026

Note. Contrast 1 denotes the difference between inhibited and hyperactive versus average children, and Contrast 2 denotes the difference between inhibited and hyperactive children.

* $p < .05$.

** $p < .01$.

perceptions of conflict and their perceptions of dependency were positively associated with the level of behavior regulation and the level of socioemotional support they reported for each of the children. In addition, teachers in Sample B reported more support and behavior regulation for children with whom they reported to share distant relationships. It is important to note that these effects were unique and held independent of children's general (problem) behaviors (Pianta et al., 2003). Although these findings are limited to teachers' perceptions of their own behaviors, they indicate that unfavorable relationship perceptions are associated not only with teachers' attempts to control children's behaviors (cf. Hamre & Pianta, 2001), but also with their self-perceived endeavors to foster children's social and emotional well-being.

As expected, the mediation analyses provided a plausible explanation for these results. It appeared that the links between teach-

ers' relationship and practice reports could be attributed, in part, to teachers' appraisals of children's behaviors. Teachers gave higher disruptiveness ratings to children with whom they reported to share unfavorable relationships, in particular, relationships characterized by conflict. Likewise, teachers' hindrance ratings were associated with unfavorable relationship reports, which supported the idea that unfavorable relationship characteristics indicate specific interpersonal difficulties with negative consequences for children. Consistent with the hypotheses, teachers' ratings of disturbance mediated the effects of their relationship perceptions on behavior regulation. Similarly, teachers' hindrance ratings mediated the relationship effects on socioemotional support. These mediation effects were not complete in all instances. Still, they suggest that unfavorable relationship perceptions are related to teacher behavior, or at least to teachers' behavior intentions, through their partic-

ular connotations. Thus, it appears not only that perceived unfavorable relationship characteristics are a nuisance to teachers, but also that they reflect specific difficulties for children. The findings from this study are clearly consistent with the idea that teachers are trained and expected to attend to children's needs (Chazan et al., 1987), and that this affects their interpersonal scripts for relating to their students. It seems that teachers do not take unfavorable relationship characteristics for granted, but respond, or try to respond, to the difficulties associated with them. The finding that complete mediation was absent in some instances does not limit this conclusion. In fact, it is compatible with the notion that scripts can operate outside of conscious awareness (Baldwin, 1992).

The analyses yielded three different results for the two samples. First, whereas distance was a significant predictor of teachers' practices in Sample B, it had no unique effects on them in Sample A. Next, hindrance appeared to fully mediate the link between dependency and socioemotional support in Sample A, but partially in Sample B. Third, disturbance fully mediated the effect of dependency on behavior regulation in Sample B, but partially in Sample A. It is difficult to explain the first difference, but a tentative speculation can be made with respect to the second and the third outcome. Further analyses, not reported here, indicated that none of these differences could be attributed to the inclusion of conflict as an additional predictor in Sample B. However, questioning teachers about this third relationship characteristic might have influenced their evaluation of children's dependent behaviors, and hence the extent to which teachers' appraisals mediated the influence of perceived dependency on teachers' practices. Perhaps teachers perceived dependency as less debilitating to the child and more disturbing, the more focused they were on the plainly disruptive and troublesome aspects of children's interactions with them. The correlation patterns in the different samples (Table 2) were consistent with this line of reasoning. In addition to this, the different outcomes might

be attributed to sample characteristics not assessed in the present study. As reported, both samples came from regular Dutch schools, and teachers were similar with respect to age and years of teaching experience. Still, both samples might have differed with respect to other characteristics, such as additional teacher training and the presence of specific instructional or socioemotional programs.

The findings from this study have important consequences for research and practice. First, they seem to question the idea that teacher support is a key characteristic of the quality of the teacher-child relationship, at least with regard to teachers' perceptions of support (see Pianta et al., 2003). This does not imply that support does not contribute to favorable relationships. In fact, it is likely that these relationships, as secondary attachment bonds, reflect a history of positive interaction behaviors from both relationship partners, including sensitive behaviors from teachers (Pianta, 1992; van IJzendoorn et al., 1992). However, the present results suggest that teachers do not intend to continue unfavorable interaction cycles. As far as teachers' own perceptions are concerned, support is compatible with conflicted, and even positively associated with dependent and distant relationships. This conclusion has implications for attempts to compare and integrate research findings from different relationship perspectives. Studies relying on children's perceptions have operationalized relationship qualities in terms of perceived support from teachers (Mantzicopoulos & Neuhauser Pritchett, 2003; Murray & Greenberg, 2000). When different relationship perceptions do not refer to the same constructs, comparisons between them and their correlates should be made with caution.

In addition, the conclusions from this study have practical relevance. It is increasingly acknowledged that teachers' relationship perceptions can be valuable tools for assessing and changing teachers' interactions with children who face socioemotional difficulties (Koomen et al., 2006; Pianta, 2001; Pianta et al., 2003). The current findings further underline this importance. They seem to suggest

that teachers are generally aware of the liabilities of unfavorable relationships, apart from children's internalizing or externalizing difficulties, and not reluctant to counteract them. School psychologists and school-based mental health professionals could examine, use, and foster this awareness in the case of individual children referred for emotional or behavioral problems. To this aim, they should assess teachers' relationship perceptions and their intended pedagogical practices, and encourage teachers to scrutinize the links between them. If teachers do base their pedagogical practices on their relationship perceptions, they should be encouraged and helped to further reflect upon individual relationships, gear their practice intentions to specifics of these relationships, and translate their intentions into appropriate actions. For instance, if a teacher attempts to be supportive because she perceives her relationship with a child as overly dependent, careful considerations of when and how this dependency manifests itself could help her find and carry out effective forms of support. If teachers do not consider unfavorable relationships as grounds for pedagogical interventions, they could be made aware of the liabilities of such relationships and the need for deliberate pedagogical action. Thus, in both instances, teachers could be helped in improving their relationships with individual children.

An important question is how the present findings relate to the documented effects of early teacher-child relationships on children's development. As noted, unfavorable relationships have been identified as developmental risk factors. That teachers indicated more support for children with whom they reported to share distant and dependent relationships may appear at odds with this notion. However, there are two reasons why this needs not be the case. First, unfavorable relationships may have negative effects *in spite* of teachers' attempts to be supportive to children. As noted, these relationships may indicate specific problems, some of which may extend to interactions with others as well. For instance, unfavorable relationships with teachers appear to affect children's peer repu-

tations and hence the extent to which they are accepted by their classmates (Hughes et al., 2001). These problems might be difficult to overcome by teacher support alone. Second, unfavorable relationship perceptions were not only associated with socioemotional support but also with behavior regulation. Little is known about the effects of controlling and directing teacher behaviors. However, based on the parenting literature it can be hypothesized that high levels of teacher control, whether combined with support or not, are associated with low academic achievement and behavior problems (Gadeyne, Ghesquiere, & Onghena, 2004; Rothbaum & Weisz, 1994). To resolve these issues and to properly reconcile the current results with previous research findings, it is necessary to examine the effects of teachers' self-reported practices on child outcomes. This was clearly beyond the scope of this study, but seems to be an important topic for future research.

Finally, it also seems important to relate the present findings to what is known about teachers' interactions with children with emotional and behavioral difficulties. The emotional and behavioral difficulties literature indicates that teachers provide relatively little and inadequate instruction to children who exhibit problem behaviors (e.g., Sutherland & Oswald, 2005; Wehby, Symons, Canale, & Go, 1998), which could also hold for children with whom they have problematic interactions. This seems to contradict the present idea that teachers are motivated to actively change the social behaviors of such children. However, both notions can be reconciled, as unfavorable relationship characteristics were also perceived to be disruptive. Thus, the difficulties for which teachers have pedagogical attention could be the very same problems that hinder teachers in doing their instructional jobs. Future comparative studies are needed to confirm this impression, and examine how teachers can attend to both the academic and socioemotional needs of children with whom they have problematic interactions.

To evaluate the present research, four qualifications should be considered. First, all

data, including information about children's problem behaviors, originated from teachers. Thus, the obtained relations may reflect both social desirability biases and shared method variance. Despite these limitations, the self-report measure was appropriate for the aim of the study, which was to explore the correlates of teacher-child relationships from teachers' own perspective. Of course, different methods would be required if the goal were to obtain a more objective picture of the link between student-teacher relationships and teacher behaviors. Second, the design was cross-sectional and no claims can be made regarding the causality of the obtained effects. Teachers' relationship perceptions were analyzed as if they preceded their behaviors, but these perceptions may be influenced by their behaviors as well. Future studies should disentangle these effects by using longitudinal designs. Third, the children were selected based on the presence (or absence) of social inhibition and hyperactivity (according to their teachers). The selection was adequate for a first evaluation of the hypotheses, because it allowed the examination of the effects of perceived relationship characteristics independent of considerable differences in perceived problem behavior. However, it might also have directed teachers' attention to the problematic aspects of their relationships with some of these children. Thus, future research is needed to replicate the present findings in samples of randomly selected children, where the liabilities of unfavorable relationship characteristics are possibly less salient to teachers. Still, it should be noted that the saliency of behavior differences in the present samples might be constrained by the fact that teachers were not informed about the selection guidelines.

Finally, two aspects of the study might limit the generalizability of its results. First, the numbers of teachers involved in both samples were relatively small ($N = 39$ and $N = 42$), and second, all teachers and children were from Dutch kindergarten classes only. Replication of the current findings in other, larger samples is warranted, and these samples should include kindergarten and primary

school teachers from different countries. Still, while acknowledging the importance of future confirmatory research, it seems that similar findings can be expected in other western samples. It should be noted that the results were comparable across Samples A and B. Moreover, to the authors' knowledge, the educational system in the Netherlands is comparable to systems in other western countries as far as teacher-child interactions are concerned. For instance, the central constructs in the present study—teachers' relationship perceptions and pedagogical practices—appear to have similar structures as those reported in U.S.-based studies (cf. Brophy & McCaslin, 1992; Cunningham & Sugawara, 1989; Pianta, 2001). Thus, it does not seem that the present results are confined to the Dutch school situation.

Despite its qualifications and limitations, this explorative study has important implications for research and practice in the domain of early teacher-child relationships. Its results qualify the idea that supportive teacher behaviors are a defining characteristic of favorable teacher-child relationships (see Pianta et al., 2003). In fact, perceptions of dependent and distant relationships were associated with self-reported attempts to help and encourage children. Although the consequences of these attempts require further investigation, the present findings further emphasize the need to include teachers' relationship perceptions in practical assessments of children referred for emotional or behavioral problems.

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